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10/814,114	03/30/2004	Luiz M. Franca-Neto	884.B70US1	5166

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EXAMINER	
TORRES, JUAN A	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,114	FRANCA-NETO, LUIZ M.	
	Examiner	Art Unit	
	JUAN A. TORRES	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,7-9,11,13-15,18,19,22 and 25-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7-9,11,13-15,18,19,22 and 25-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

The modifications to the claims were received on 10/31/2008. These modifications are accepted by the Examiner.

In view of the amendment filed on 10/31/2008, the Examiner withdraws claim objections to claims 7-10 and 27 of the previous Office action.

Claim Rejections - 35 USC § 101

The modifications to the claims were received on 10/31/2008. These modifications are accepted by the Examiner.

In view of the amendment filed on 10/31/2008, the Examiner withdraws claim rejections under 35 USC § 101 second paragraph to claims 22 and 27 of the previous Office action.

Response to Arguments

Applicant's arguments with respect to claims 1, 7, 11, 15, 19, 22 and 27 have been considered but are moot in view of the new ground(s) of rejection.

Examiner NOTE:

Rogerson also discloses the possibility of a master oscillator and multiple slave oscillator, specifically Rogerson discloses in paragraph [0166] "oscillators based on implementations of oscillator 342 as described herein may also include oscillators that produce more than one burst simultaneously, each such burst occupying a different frequency band." Rogerson also discloses the use of a master oscillator (block 380 in figure 40) and the use of multiple slave oscillators (several outputs S418, see above).

The technique of using a master oscillator and several slave oscillator is also well-known (see below), because obviously only one oscillator need to be of good quality and the slave oscillator can be of lower quality, in this way the price could be reduced and also the complexity, because only one oscillator has to be synchronized

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 15, 18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogerson (US 20030099299 A1) in view of Berman (US 5038341 A).

Regarding claim 15, Rogerson discloses translating a first bit stream into a multi-tone communications signal having a substantially simultaneous multi-tone signaling bandwidth of greater than about 20 percent of an associated carrier frequency (figure 16 blocks 200 and 300 paragraph [0076] and [0082], see figure 4 for multi-tone and figure 26 for one implementation); translating the first bit stream into a second bit stream having data presented as one or more groups of substantially simultaneous bits (figure 8 block T100 and figure 9 every n-tuples correspond to 4 bits paragraph [0089] and figure 16 block 200 paragraph [0126]); and translating the second bit stream into the multi-tone communications signal comprising a number of substantially simultaneous tones not greater than a maximum number of the substantially simultaneous bits (figure 2 uses 3 tones for transmitting the n-tuples). Rogerson doesn't specifically discloses

(see the Examiner note in the response to argument above) the detail of a master oscillator and multiple slave oscillators. Berman discloses a master oscillator and multiple slave oscillators (figure 1 blocks 16 and 38-42 column 3 lines 30-49). Rogerson and Berman teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the master/slave oscillators discloses by Berman. The suggestion/motivation for doing so would have been to use a well-know technique in wireless communications to produce a plurality of synchronized frequencies (Berman abstract and column 3 lines 30-49).

Regarding claim 18, Rogerson and Berman disclose claim 15, Rogerson also discloses shifting the first bit stream to provide the second bit stream (figure 18 block 400 and figure 19, paragraphs [0134]-[0135]).

Regarding claim 27, Rogerson discloses translating a first bit stream into a multi-tone communications signal having a substantially simultaneous multi-tone signaling bandwidth of greater than about 20 percent of an associated carrier frequency (figure 16 blocks 200 and 300 paragraph [0076] and [0082], see figure 4 for multi-tone and figure 26 for one implementation); translating the first bit stream into a second bit stream having data presented as one or more groups of substantially simultaneous bits (figure 8 block T100 and figure 9 every n-tuples correspond to 4 bits paragraph [0089] and figure 16 block 200 paragraph [0126]); and translating the second bit stream into the multi-tone communications signal comprising a number of substantially simultaneous

tones less than or equal to a maximum number of substantially simultaneous bits (figure 8 block T100 and figure 9 every n-tuples correspond to 4 bits paragraph [0089] and figure 16 block 200 paragraph [0126]). Rogerson doesn't specifically discloses (see the Examiner note in the response to argument above) the detail of a master oscillator and multiple slave oscillators. Berman discloses a master oscillator and multiple slave oscillators (figure 1 blocks 16 and 38-42 column 3 lines 30-49). Rogerson and Berman teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the master/slave oscillators discloses by Berman. The suggestion/motivation for doing so would have been to use a well-know technique in wireless communications to produce a plurality of synchronized frequencies (Berman abstract and column 3 lines 30-49).

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogerson (US 20030099299 A1) in view of Walker (US 20040048574 A1) (Rogerson is co-inventor) and further in view of Berman (US 5038341 A).

Regarding claim 1, Rogerson discloses a multi-bit encoder coupled to a multi-tone generator to provide a multi-tone communications signal having a substantially simultaneous multi-tone signaling bandwidth of greater than about 20 percent of an associated carrier frequency wherein the multi-tone generator is to generate a plurality of tones responsive to data from the multi-bit encoder (figure 16 blocks 200 and 300 paragraph [0076] and [0082], see figure 4 for multi-tone and figure 26 for one implementation). Rogerson doesn't disclose that a number of tones greater than a

number of possible states of the data. Walker discloses that a number of tones greater than a number of possible states of the data (paragraph [0087], BPSK modulation has 2 levels). Rogerson and Walker teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the BPSK modulation discloses by Walker. The suggestion/motivation for doing so would have been to use and effective modulation for low SNR (BPSK is one of the strongest modulation techniques that can work with low SNR). Rogerson and Walker don't specifically discloses (see the Examiner note in the response to argument above) the detail of a master oscillator and multiple slave oscillators. Berman discloses a master oscillator and multiple slave oscillators (figure 1 blocks 16 and 38-42 column 3 lines 30-49). Rogerson, Walker and Berman teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson and Walker the master/slave oscillators discloses by Berman. The suggestion/motivation for doing so would have been to use a well-know technique in wireless communications to produce a plurality of synchronized frequencies (Berman abstract and column 3 lines 30-49).

Regarding claim 2, Rogerson, Walker and Berman disclose claim 1, Rogerson also discloses to receive a first bit stream and to provide a second bit stream having data presented as one or more groups of substantially simultaneous bits (figure 8 block T100 paragraph [0089] and figure 16 block 200 paragraph [0126]).

Regarding claim 3, Rogerson, Walker and Berman disclose claim 2, Rogerson also discloses a shift register (figure 18 block 400 and figure 19, paragraphs [0134]-[0135]).

Claims 19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogerson (US 20030099299 A1) in view of Walker (US 20040048574 A1) (Rogerson is co-inventor) and further in view of Jin US 20050190855 A1).

Regarding claims 19 and 22, Rogerson discloses receiving a multi-tone communications signal at a plurality of phasor detectors to determine a presence of a number of substantially simultaneous tones included in a multi- tone communications signal having a substantially simultaneous multi-tone signaling bandwidth of greater than about 20 percent of an associated carrier frequency (figure 16 blocks 200 and 300 paragraph [0076] and [0082], see figure 4 for multi-tone and figure 26 for one implementation; figure 48 block 412 paragraph [0181] and figures 44-58); amplifying the multi-tone communications signal using an approximately equal gain prior to the comparing (figure 48 block 550 and figures 44-58); comparing a combined amount of measured signal in at least one of the number of substantially simultaneous tones to a threshold value (figure 45-48 edge detector block 450 with comparator 540 and figures 44-58); receiving multiple indications of the presence of the plurality of tones from a plurality of phasor detectors (figure 48 input block 420 paragraph [0177] and figures 44-58); and determining a received data output corresponding to the multiple indications (figure 48 block 420 paragraph [0177] and figures 44-58). Rogerson doesn't disclose that the signal is an orthogonal signal and that the antenna is an omnidirectional

antenna and automatic gain control. Walker discloses that the signal is an orthogonal signal (figure 24, paragraph [0087], QAM modulation). Rogerson and Walker teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the QAM modulation discloses by Walker. The suggestion/motivation for doing so would have been to use high data rates. Jin discloses the use an automatic gain control (figure 2 block 208 paragraphs [0022]-[0023]). Rogerson, Walker and Jin teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson and Walker the automatic gain control disclosed by Jin. The suggestion/motivation for doing so would have been to optimize the power efficiency of the transmitter (abstract)

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogerson (US 20030099299 A1) in view of Walker (US 20040048574 A1) (Rogerson is co-inventor) in view of O'Neill (US 5559866 A) and further in view of Jin US 20050190855 A1).

Regarding claim 7, Rogerson discloses a plurality of phasor detectors to determine a presence of a plurality of tones included in a multi-tone communications signal having a substantially simultaneous multi-tone signaling bandwidth of greater than about 20 percent of an associated carrier frequency (figure 16 blocks 200 and 300 paragraph [0076] and [0082], see figure 4 for multi-tone and figure 26 for one

implementation) by comparing a combined amount to a threshold value (figure 48 block 412 paragraph [0181] and figures 44-58); and a distribution module couple to an antenna and to provide the multi- tone communications signal to the plurality of phasor detectors (figure 48 input block 412 paragraph [0181] and figures 44-58). Rogerson doesn't disclose that the signal is an orthogonal signal, that the antenna is an omnidirectional antenna and automatic gain control amplifier to apply substantially equal gain to the transmitter frequencies. Walker discloses that the signal is an orthogonal signal (figure 24, paragraph [0087], QAM modulation). Rogerson and Walker teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the QAM modulation discloses by Walker. The suggestion/motivation for doing so would have been to use high data rates. O'Neill discloses the use of an omnidirectional antenna (abstract). Rogerson, Walker and O'Neill teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson and Walter the omnidirectional antenna discloses by O'Neill. The suggestion/motivation for doing so would have been to receiver the signal with equal gain in all directions reducing the complexity of the receiver. Jin discloses automatic gain control amplifier to apply substantially equal gain to the transmitter frequencies (figure 2 block 208 paragraphs [0022]-[0023]). Rogerson, Walker, O'Neill and Jin teachings are analogous art because they are from the same

field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson, Walker and O'Neill the automatic gain control disclosed by Jin. The suggestion/motivation for doing so would have been to optimize the power efficiency of the transmitter (abstract)

Regarding claim 8, Rogerson, Walker, O'Neill and Jin disclose claim 7, Walter also discloses a quadrature detector (figure 24, paragraph [0087], QAM modulation). Rogerson and Walker teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the QPSK modulation discloses by Walker. The suggestion/motivation for doing so would have been to use high data rates.

Regarding claim 9, Rogerson, Walker, O'Neill and Jin disclose claim 7, Walter also discloses a sine component and a cosine component (figure 24, paragraph [0087], QAM modulation). Rogerson and Walker teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the QPSK modulation discloses by Walker. The suggestion/motivation for doing so would have been to use high data rates.

Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogerson (US 20030099299 A1) in view of Walker (US 20040048574 A1)

(Rogerson is co-inventor) in view of O'Neill (US 5559866 A) and further in view of in view of Berman (US 5038341 A).

Regarding claim 11, Rogerson discloses a multi-bit encoder coupled to a multi-tone generator to provide a first multi-tone communications signal having a substantially simultaneous multi-tone signaling bandwidth of greater than about 20 percent of an associated carrier frequency (figure 16 blocks 200 and 300 paragraph [0076] and [0082], see figure 4 for multi-tone and figure 26 for one implementation); a plurality of phasor detectors to determine a presence of a plurality of tones included in a second multi-tone communications signal by comparing a combined amount of measured signal to a threshold value (figure 48 block 412 paragraph [0181] and figures 44-58); and a distribution module couple to an antenna and to provide the multi- tone communications signal to the plurality of phasor detectors (figure 48 input block 412 paragraph [0181] and figures 44-58). Rogerson doesn't disclose that the signal is an orthogonal signal, that the antenna is omnidirectional and a master oscillator and multiple slave oscillators. Walker discloses that the signal is an orthogonal signal (figure 24, paragraph [0087], QAM modulation). Rogerson and Walker teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson the QAM modulation discloses by Walker. The suggestion/motivation for doing so would have been to use high data rates. O'Neill discloses the use of an omnidirectional antenna (abstract). Rogerson, Walker and O'Neill teachings are analogous art because they are from the same field of endeavor of

wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson and Walter the omnidirectional antenna discloses by O'Neill. The suggestion/motivation for doing so would have been to receiver the signal with equal gain in all directions reducing the complexity of the receiver. Berman discloses a master oscillator and multiple slave oscillators (figure 1 blocks 16 and 38-42 column 3 lines 30-49). Rogerson, Walter, O'Neill and Berman teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson, Walter, O'Neill the master/slave oscillators discloses by Berman. The suggestion/motivation for doing so would have been to use a well-know technique in wireless communications to produce a plurality of synchronized frequencies (Berman abstract and column 3 lines 30-49).

Regarding claim 13, Rogerson, Walker, O'Neill and Berman disclose claim 11, Rogerson also discloses a determination module to receive multiple indications of the presence of the plurality of tones from the plurality of phasor detectors and to determine a received data output corresponding to the multiple indications (figure 48 block 420 paragraph [0177] and figures 44-58).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rogerson, Walker, O'Neill and Berman as applied to claim 11 above, and further in view of Jin US 20050190855 A1).

Regarding claim 14, Rogerson, Walker, O'Neill and Berman disclose claim 11, Rogerson, Walker, O'Neill and Berman don't specifically disclose automatic gain control amplifier to apply substantially equal gain to the transmitter frequencies. Jin discloses automatic gain control amplifier to apply substantially equal gain to the transmitter frequencies (figure 2 block 208 paragraphs [0022]-[0023]). Rogerson, Walker, O'Neill and Jin teachings are analogous art because they are from the same field of endeavor of wireless communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to integrate in the system disclosed by Rogerson, Walker and O'Neill the automatic gain control disclosed by Jin. The suggestion/motivation for doing so would have been to optimize the power efficiency of the transmitter (abstract).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hughes (US 20020171495 A1) discloses an oscillator averaging phase shift generator.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUAN A. TORRES whose telephone number is (571)272-3119. The examiner can normally be reached on 8-6 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan Alberto Torres
01/13/2009

/Juan A Torres/
Primary Examiner, Art Unit 2611